

ENERGY CONSERVATION GLOSSARY

American Society of Heating, Refrigerating & Air-Conditioning Engineers (ASHRAE) – international organization that develops standards for uniform testing and rating of heating, ventilation, air-conditioning and refrigeration equipment. It also conducts related research, disseminates publications and provides continuing education to its members.

Anaerobic – living in the absence of air or free oxygen, or a chemical reaction or process not dependent on the presence of oxygen.

Ballast – part of a fluorescent light fixture that supplies initial electricity to the bulb and regulates electricity flow

Battery – device that stores energy and furnishes electric current upon demand

Bio-diesel – a blend of bio-fuel and petroleum diesel which can be used in compression-ignition (diesel) engines

Bio-fuel – fuel produced from plant and organic-based compounds.

Biogenic – resulting from the activity of living organisms, as fermentation; produced by living organisms or biological processes.

Biomass – a renewable energy source derived from organic materials including plant matter and animal waste that is usually incinerated to produce electricity

British thermal units (Btu) – a unit of energy equal to the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at one atmospheric pressure.

Carbon Dioxide (CO₂) – a compound carbon and oxygen generated as a by-product of the combustion of fossil fuels or the burning of vegetable matter; is an acidic oxide; toxic in high concentrations

Carbon monoxide (CO) – an odorless, colorless and toxic gas that results from incomplete oxidation of carbon in combustion; burns with a violet flame

Commissioning – quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meets defined objectives and criteria

Compressed natural gas (CNG) – a natural gas that is under pressure, remains clear, odorless and non-corrosive and is often used as an environmentally friendly substitute for gasoline or diesel

Condenser coils – soft aluminum tubes in an HVAC unit through which refrigerant flows so it can be cooled, allowing for the transfer of heat more quickly

Conservation – the careful utilization of natural resources in order to prevent depletion (see also energy conservation)

Cool Roofs – roofs consisting of materials that very effectively reflect the sun's heat energy from the roof surface.

Demand Response Program – Demand response (also known as load response) is end-use customers reducing their use of electricity in response to power grid needs, economic signals from a competitive wholesale market or special retail rates.

Direct Current (DC) – electricity that flows in one direction steadily with constant strength, not used for long-distance power transmission

Economizer – mechanical devices intended to reduce energy consumption in buildings by recapturing heat from the building before air is exhausted to the outside or by using ambient air temperature outside to adjust building temperatures inside without requiring mechanical heating or cooling.

Fossil fuel – fuels such as oil, natural gas and coal that were naturally produced over long periods of time from the remains of living organisms.

Efficiency – a relative measure of the amount of energy required to do a task compared to the optimum means of accomplishing the same task.

Ethylene propylene diene monomer (EPDM) – high-density synthetic rubber used as a roofing material that is very durable, has great resistance to abrasives, tearing, solvents and high temperatures

Electric Vehicle (EV) – a vehicle propelled by an electric motor(s) powered by battery packs that can be recharged by plugging them into a power outlet.

Emissions – substances discharged into the air including by-products of internal combustion engines and power generating plants that are fired by coal, natural gas or oil.

Energy – (physics) a thermodynamic quantity equivalent to the capacity of a physical system to do work;

Energy conservation – is the practice of decreasing the quantity of energy used. It may be achieved through more efficient energy use, in which case energy use is decreased

while achieving a similar outcome (e.g. improving insulation in exterior walls), or by a reduction in activities that consume energy (e.g. turning off lights when not in the room).

Energy Star – A joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy developed to protect the environment through energy efficiency products and practices.

Ethanol – a liquid fuel produced through man-made processing of organic matter;

Flex Fuel Vehicle (FFV) – a vehicle designed to run on both gasoline and a blend of gasoline and ethanol; FFVs typically get about 20-30 percent fewer miles per gallon since ethanol contains less energy than gasoline

Fluorescent lights – lights where the source of light is produced by gas that glows when connected to electricity. Fluorescent light bulbs can have a very long life – between 8,000 and 20,000 hours. They use up to 75 percent less power than incandescent light bulbs.

Fuel cell – a device used for combining fuel and oxides to generate electricity. It is the conversion of chemicals to electrical energy.

Geothermal – refers to the utilization of the relatively constant below-grade temperatures of the earth for either heat extraction or heat rejection for HVAC systems in buildings.

Greenhouse gases (GHG) – any gas that absorbs infrared radiation in the atmosphere; includes water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), halogenated fluorocarbons (HCFCs), ozone (O₃), perfluorinated carbons (PFCs) and hydrofluorocarbons (HFCs)

Heat pump – a machine or device that moves heat from one location (the 'source') to another location (the 'sink' or 'heat sink') using mechanical work. One common type of heat pump works by exploiting the physical properties of an evaporating and condensing fluid known as a refrigerant. Common examples are food refrigerators and freezers, air conditioners, and reversible-cycle heat pumps for providing thermal comfort.

Hybrid Electric Vehicle (HVE) – a vehicle propelled by an internal combustion engine and an electric motor(s);, the HVE converts energy normally wasted during coasting and braking into electricity, which is stored in the battery until needed by the electric motor.

Hydrocarbons (HC) – organic compounds that contain only carbon and hydrogen

Hydroelectricity – electricity generated from the power of moving water operating electrical turbines

Hydrogen – the most abundant element on earth yet hydrogen does not occur naturally; once separated from another element, hydrogen can be burned as a fuel or converted into electricity.

Improving energy efficiency – accomplishing a task with less energy; energy efficiency may be improved by changing-out older technology equipment with newer technology equipment (for example replacing 32-watt light fluorescent bulbs with 28-watt bulbs which produce equal light).

Incandescent light – lights where the source of the light is an electric current passing through a thin filament, heating it until it glows

Kilowatt hour (kWh) – measure of electricity equal to 1 kilowatt of power produced or used over 1 hour

Landfill Gas to Energy (LFG) – A process of burning the gases produced by decomposing waste in landfills to power electric generators

Leadership in Energy & Environmental Design (LEED) – A rating scale developed by the U.S. Green Building Council for measuring a building's impact on the environment and those that will occupy the building;

Light Emitting Diode (LED) – a light source that uses significantly less energy than traditional lighting because it produces light without significant waste heat

Maryland Renewable Portfolio Standard (RPS) – a Maryland statute that requires electricity suppliers (all utilities and competitive retail suppliers) to use renewable energy sources to generate a minimum portion of their retail sales. Beginning in 2006, electricity suppliers are required to provide 1% of retail electricity sales in the state from Tier 1 renewables and 2.5% from Tier 2 renewables. The renewable requirement increases gradually, ultimately reaching a level of 20% from Tier 1 resources in 2022 and beyond, and 2.5% from Tier 2 resources from 2006 through 2018. The Tier 2 requirement sunsets, dropping to 0% in 2019 and beyond

Megawatt (MW) – unit of energy equal to 1 million watts or 1,000 kilowatts

Methane (CH₄) – odorless, colorless, flammable gas, released during decomposition of plant or other organic compounds; main component of marsh gas and frequently formed in coal mines; used as a source of fuel and an important source of hydrogen

Million Metric Tons of Carbon Equivalent (MMTCE) – also referred to as carbon equivalent. Metric measure used to compare the emissions of greenhouse gases based upon their global warming potential. The equivalent for gas is derived by multiplying the tons of gas by the associated global warming potential.

Natural gas – a fossil fuel that is a colorless and odorless gas

Non-renewable energy– of or relating to energy sources such as oil, natural gas, coal, uranium that are not replenishable, or that are produced naturally at a dramatically slower rate than current demand would utilize.

Northeast Maryland Waste Disposal Authority (NMWDA) – An independent State agency representing 7 Maryland counties and the City of Baltimore

Oxygenated fuel – fuel that has a chemical compound containing oxygen added to improve combustion efficiency and reduce some types of atmospheric pollution

Photovoltaic (PV) – direct conversion of light into electricity through solar cells

Portfolio Manager (provided by EPA) – An interactive energy management software application made available to the public by the EPA and DOE that tracks and assess energy and water consumption across an entire portfolio of buildings and provides a ranking of a building's energy efficiency compared to other buildings of a similar size and use taking into account regional and seasonal variations in the weather.

Renewable energy – energy produced from sources that can be used indefinitely or over very long periods of time without exhausting the supply if properly managed such as solar energy, flowing water, geothermal heat, bio-fuels or wood.

Renewable Energy Credits (REC's) – marketable environmental commodities in the U.S. which represent proof of electricity was generated from eligible renewable energy resources

Seasonal Energy Efficiency Rating (SEER)/Energy Efficiency Rating (EER) – measures of the efficiency of air-conditioning systems; ratio of the annual BTU's of cooling provided divided by the electric energy input used and measured over a range of temperatures

Smart Client – is a term used to describe electronic data management through a 'virtual desktop infrastructure' that reduces electricity consumption by eliminating the need for the more traditional desktop computer hardware of local hard drives, external hardware ports and floppy drives.

Solar Cells – cells that convert sunlight directly into electricity and are made of semiconductors such as crystalline silicon or various thin-film materials

Solar Energy – heat and light energy produced by the sun

Solar Reflectance – measure of the ability of a surface material to reflect sunlight – including the visible, infrared, and ultraviolet wavelengths – scale of measure from 0 to 1. Also called albedo

Solid Waste Association of North America (SWANA) – leading professional association in the solid waste management field

Standard Planning Grade Energy Assessment– building assessments designed to identify and document energy-saving retrofit and upgrade opportunities

Sustainability – a lifestyle or the result of choices that meets the needs of the present without compromising the ability of future generations to meet their own needs; understand the interconnections of the economy, society and environment and supports equitable distribution of resources and opportunities

Thermal Energy – energy derived from heat

Therms – a unit of measure equal to 100,000 Btu's

Thermoplastic olefin (TPO) – blend of polymers with high reflective qualities used as a roofing material

Tier 1 Renewable sources – geothermal, hydro facilities under 30 MW, methane, ocean, qualifying biomass, solar, wind, and fuel cells

Tier 2 Renewable sources – municipal waste-to-energy projects, poultry litter, and existing hydro facilities over 30 MW

Variable Refrigerant Volume (VRV) HVAC System – a high efficiency HVAC system that moves or removes heat in spaces by varying the flow of refrigerant to individual units in each room, rather than the more traditional system of large volumes of air moving across central heat exchangers. VRV systems often include the capability to transfer heat within a building from an area needing cooling to an area requiring heat ; this system is sometimes referred to as a 'ductless system' since traditional large air ducts are not required.

Vegetated roof – a roof surface that is covered with plantings and landscape used primarily to increase the insulation value of the roof and to reduce storm water runoff.

Watt – unit of power equal to one joule per second and equal to the power in a circuit in which a current of one ampere flows across a potential difference of one volt

Wind power – Electricity generated by wind turbines turned by the kinetic energy of wind.